

7 ~~89~~. The system of claim ~~80~~ wherein the electrode terminal comprises a single electrode disposed near the distal end of the instrument shaft.

D1 8 ~~90~~. The system of claim ~~80~~ wherein the electrode terminal includes an array of electrically isolated electrode terminals disposed near the distal end of the instrument shaft.

D2 9 ~~91~~. The system of claim ~~80~~ wherein the electrically conductive fluid has originated from an external source outside of the patient's body.

D3 10 ~~92~~. The system of claim ~~80~~ wherein the electrically conductive fluid comprises isotonic saline.

D4 11 ~~93~~. The system of claim ~~80~~ further comprising a fluid delivery element, wherein the fluid delivery element comprises a fluid lumen on the instrument shaft.

D5 12 ~~94~~. The system of claim ~~80~~ wherein the electrode terminal is disposed over a lateral surface of the electrically insulating support member near the distal end of the instrument shaft.

D6 13 ~~95~~. The system of claim ~~80~~ further comprising a temperature sensor adjacent to the electrode terminal for controlling power delivery to the electrode terminal based on temperature at a target site.

D7 14 ~~102~~. An electrosurgical system for smoothing body structures having an irregular surface, comprising:

an electrosurgical instrument having a shaft with a proximal end portion and a distal end portion;

an active electrode disposed at the distal end portion of the shaft and having a tissue treatment surface;

an electrically insulating support member at or near the distal end portion of the shaft, wherein the tissue treatment surface of the active electrode is flush with a tissue treatment surface of the support member;

a return electrode;

a high frequency power source;

at least one connector disposed near the proximal end portion of the shaft electrically coupling the active and return electrodes to the high frequency power source; and

a fluid delivery element for delivering electrically conductive fluid between the active electrode and the body structure.

D7  
18/26 106. The system of claim 105 further comprising a temperature controller coupled to the temperature sensor and the high frequency power source for regulating the power applied to the electrode terminal based on the temperature at a target site.

D8  
21/19 108. The system of claim 106 wherein the temperature controller adjusts the output voltage of the high frequency power source in response to a temperature set point and the measured temperature value received from the temperature sensor.

D9  
23/21 110. An electrosurgical system for smoothing body structures having an irregular surface, comprising:

an electrosurgical instrument having a shaft with a proximal end and a distal end;

D10  
an electrode terminal disposed at or near the distal end of the shaft;

a return electrode;

an electrically insulating support member at or near the distal end of the shaft, wherein the electrode terminal is flush with a tissue treatment surface of the support member;

at least one connector disposed near the proximal end of the shaft for electrically coupling the electrode terminal and the return electrode to a high frequency voltage source; and

a temperature sensor adjacent to the electrode terminal, the temperature sensor adapted for being electrically coupled to the high frequency voltage source for controlling power delivery to the electrode terminal based on temperature at a target site; wherein the electrode terminal is sized and constructed to deliver sufficient energy to an irregular surface of a body structure to at least partially smooth the irregular surface of the body structure.

D10 222/111. The system of claim 110 wherein the electrode terminal is configured to deliver sufficient energy to smooth the irregular surface of an articular cartilage while minimizing the depth of ablation and necrosis in the articular cartilage.

233/112. The system of claim 110 wherein the return electrode is spaced from the electrode terminal such that when a portion of the electrode terminal is brought adjacent to the irregular surface of the body structure immersed in electrically conductive fluid, the electrode terminal is positioned between the return electrode and the body structure and the electrically conductive fluid completes a conduction path between the electrode terminal and the return electrode.

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302/116. The system of claim 110 wherein the electrode terminal is configured to deliver sufficient energy to ablate at least a portion of cartilage strands on the irregular surface of an articular cartilage to smooth said surface.

D1 312/117. The system of claim 110 wherein the electrode terminal is configured to deliver sufficient energy to heat at least a portion of cartilage strands on the irregular surface of an articular cartilage to smooth said surface.

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118. The system of claim 110 wherein the electrode terminal comprises a single electrode disposed near the distal end [portion] of the shaft.

119. The system of claim 110 wherein the electrode terminal includes an array of electrically isolated electrode terminals disposed near the distal end [portion] of the shaft.

D2 120. The system of claim 112 further comprising a fluid source for supplying the electrically conductive fluid, wherein the electrically conductive fluid has originated from the fluid source, and the fluid source is an external source outside of <sup>a</sup>the patient's body.

121. The system of claim 120 wherein the electrically conductive fluid comprises isotonic saline.

32 33 122. The system of claim 110 further comprising a fluid delivery element for delivering electrically conductive fluid to the electrode terminal.

34 30 124. The system of claim 110 further comprising a temperature controller coupled to the temperature sensor for regulating the power applied to the electrode terminal based on the temperature at a target site.

D13 35 31 125. The system of claim 124 further comprising a high frequency power supply coupled to the electrode terminal, wherein the temperature controller adjusts the output voltage of the high frequency power supply in response to a temperature set point and the measured temperature value received from the temperature sensor.

34 32 34 126. The system of claim 124 wherein the temperature

DB controller limits or interrupts current flow to the electrode terminal when the temperature of the temperature sensor reaches a threshold value.

135. The system of claim 127 wherein the electrode terminal comprises a single electrode disposed near the distal end of the shaft.

DM 136. The system of claim 127 wherein the electrode terminal includes an array of electrically isolated electrode terminals disposed near the distal end of the shaft.

137. The system of claim 129 further comprising a fluid source for supplying the electrically conductive fluid, wherein the electrically conductive fluid has originated from the fluid source, and the fluid source is an external source outside of the patient's body.

138. The system of claim 137 wherein the electrically conductive fluid comprises isotonic saline.

DS 142. The system of claim 127 wherein the electrode terminal is disposed over a lateral surface of the electrically insulating support member near the distal end of the shaft.

MARKED-UP CLAIMS

89. (Twice amended) The system of claim 80 wherein the electrode terminal comprises a single electrode disposed near the distal end of ~~an~~ the instrument shaft.

90. (Twice amended) The system of claim 80 wherein the electrode terminal includes an array of electrically isolated electrode terminals disposed near the distal end of ~~an~~ the instrument shaft.

91. (Twice amended) The system of claim ~~83~~ 80 wherein the electrically conductive fluid has originated from an external source outside of the patient's body.

92. (Twice amended) The system of claim ~~83~~ 80 wherein the electrically conductive fluid comprises isotonic saline.

95. (Amended) The system of claim ~~93~~ 80, further comprising a fluid delivery element, wherein the fluid delivery element comprises a fluid lumen on the instrument shaft ~~of the instrument~~.

97. (Amended) The system of claim 80 wherein the electrode terminal is disposed over a lateral surface of ~~an electrode~~ the electrically insulating support member near the distal end of the instrument shaft.

99. (Twice amended) The system of claim 80 further comprising a temperature sensor adjacent to the electrode terminal for controlling power delivery to the electrode terminal based on temperature at ~~the~~ a target site.

102. (Twice amended) An electrosurgical system for smoothing body structures having an irregular surface, comprising:

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an electrosurgical instrument having a shaft with a proximal end portion and a distal end portion;

an active electrode disposed at the distal end portion of the shaft and having a tissue treatment surface;

an electrically insulating support member at or near the distal end portion of the ~~instrument~~ shaft, wherein the tissue treatment surface of the active electrode is flush with a tissue treatment surface of the support member; a return electrode;

a high frequency power source;

at least one connector disposed near the proximal end portion of the shaft electrically coupling the active and return electrodes to the high frequency power source;

~~an electrically insulating member at the distal end of the shaft coupled to the active electrode, the electrically insulating member being configured to space the active electrode from the irregular surface of the body structure; and~~

a fluid delivery element for delivering electrically conductive fluid between the active electrode and the body structure.

106. (Twice amended) The system of claim 105 further comprising a temperature controller coupled to the temperature sensor and the high frequency power source for regulating the power applied to the electrode terminal based on the temperature at ~~the~~ a target site.

108. (Twice amended) The system of claim 106 wherein the temperature controller adjusts the output voltage of the high frequency power ~~supply~~ source in response to a temperature set point and the measured temperature value received from the temperature sensor.

110. (Amended) An electrosurgical system for smoothing body structures having an irregular surface, comprising:

\_\_\_\_\_ an electrosurgical instrument having a shaft with a proximal end and a distal end;

an electrode terminal disposed at or near the distal end of the shaft;

a return electrode;

an electrically insulating support member at or near the distal end of the instrument-shaft, wherein the electrode terminal is flush with a tissue treatment surface of the support member;

at least one connector disposed near the proximal end of the shaft for electrically coupling the electrode terminal and the return electrode to a high frequency voltage source; and

a temperature sensor adjacent to the electrode terminal, the temperature sensor adapted for being ~~and~~ electrically coupled to the high frequency voltage source for controlling power delivery to the electrode terminal based on temperature at ~~the~~ a target site; ~~and~~ wherein the electrode terminal is sized and constructed to deliver sufficient energy to an irregular surface of a body structure to at least partially smooth the irregular surface of the body structure.

111. (Amended) The system of claim 110 wherein the electrode terminal is configured to deliver sufficient energy to smooth the irregular surface of ~~the~~ an articular cartilage while minimizing the depth of ablation and necrosis in the articular cartilage.

112. (Amended) The system of claim 110 wherein the return electrode is spaced from the electrode terminal such that when a portion of the electrode terminal is brought adjacent to the irregular surface of the body structure immersed in electrically conductive fluid, the electrode terminal is positioned between the return electrode and the body structure and the electrically conductive fluid completes a conduction path between the electrode terminal and the return electrode.



116. (Amended) The system of claim 110 wherein the electrode terminal is configured to deliver sufficient energy to ablate at least a portion of cartilage strands on the irregular surface of ~~the~~an articular cartilage to smooth said surface.

117. (Amended) The system of claim 110 wherein the electrode terminal is configured to deliver sufficient energy to heat at least a portion of cartilage strands on the irregular surface of ~~the~~an articular cartilage to smooth said surface.

118. (Amended) The system of claim 110 wherein the electrode terminal comprises a single electrode disposed near the distal end portion of an instrument ~~the~~ shaft.

119. (Amended) The system of claim 110 wherein the electrode terminal includes an array of electrically isolated electrode terminals disposed near the distal end portion of an instrument ~~the~~ shaft.

120. (Amended) The system of claim 112 further comprising a fluid source for supplying the electrically conductive fluid, wherein the electrically conductive fluid has originated from the fluid source, and the fluid source is an external source outside of the patient's body.

121. (Amended) The system of claim ~~112~~120 wherein the electrically conductive fluid comprises isotonic saline.

122. (Amended) The system of claim ~~80~~110 further comprising a fluid delivery element for delivering electrically conductive fluid to the electrode terminal.

124. (Amended) The system of claim 110 further comprising a temperature

controller coupled to the temperature sensor for regulating the power applied to the electrode terminal based on the temperature at ~~the~~ a target site.

125. (Amended) The system of claim 124 further comprising a high frequency power supply coupled to the electrode terminal, wherein the temperature controller adjusts the output voltage of the high frequency power supply in response to a temperature set point and the measured temperature value received from the temperature sensor.

126. (Amended) The system of claim 124 wherein the temperature controller limits or interrupts current flow to the ~~active-electrode~~ terminal when the temperature of the temperature sensor reaches a threshold value.

135. (Amended) The system of claim 127 wherein the electrode terminal comprises a single electrode disposed near the distal end of ~~an instrument~~ the shaft.

136. (Amended) The system of claim 127 wherein the electrode terminal includes an array of electrically isolated electrode terminals disposed near the distal end of ~~an~~ the ~~instrument~~ shaft.

137. (Amended) The system of claim 129 further comprising a fluid source for supplying the electrically conductive fluid, wherein the electrically conductive fluid has originated from the fluid source, and the fluid source is an external source outside of the patient's body.

138. (Amended) The system of claim ~~129~~ 137 wherein the electrically conductive fluid comprises isotonic saline.

142. (Amended) The system of claim 127 wherein the electrode terminal is disposed over a lateral surface of ~~an electrode~~ the electrically insulating support member near the distal end of the ~~instrument~~ shaft.